

**A REPORT OF THE AAWG
RECOMMENDATIONS FOR REGULATORY ACTION TO PREVENT
WIDESPREAD FATIGUE DAMAGE IN THE COMMERCIAL AIRPLANE FLEET**

**Appendix G PROPOSED ARAC TASKING STATEMENT FOR FOLLOW-ON
TASKING**

HARMONIZATION TERMS OF REFERENCE

TITLE OF INITIATIVE: FAR/JAR 25 AGING AIRCRAFT

AFFECTED FAR SECTION NUMBER (S): New FAR Sections(s) to be proposed.

AFFECTED JAR PARAGRAPH NUMBER (S): New JAR Sections(s) to be proposed.

NPA/NPRM NUMBER:

ADVISORY MATERIAL NUMBER:

BACKGROUND:

The FAA and JAA have been working together on the structural issues of aging aircraft to 1) assess the progress that has been made on the original eleven model aging aircraft, 2) identify any additional activities that are necessary to ensure the continued airworthiness of those aircraft and 3) apply the lessons learned on the original eleven model aging aircraft to other airplanes used in air transportation.

Under a previous ARAC tasking, the Airworthiness Assurance Working Group (AAWG) developed a new appendix to Advisory Circular 91-56. The appendix provides guidance on the development of a Widespread Fatigue Damage (WFD) prediction and verification technique to preclude operation of transport airplanes in the presence of WFD. Although the type certificate holders of the original eleven models agreed to develop a comprehensive evaluation program for potential WFD, commercial changes have affected some of the type certificate holders since that commitment was made and Advisory Circular 91-56 was revised. At this time the program is voluntary. The FAA was concerned that certain model specific programs may not be developed prior to the fleet leaders reaching their design service goal therefore the ARAC was tasked to provide guidance on how to proceed if the voluntary program does not protect the fleet.

ARAC was tasked to review the capability of analytical methods and their validation; related research work; relevant full-scale and component fatigue test data; and tear down inspection reports, including fractographic analysis, relative to the detection of widespread fatigue damage.

ARAC was also tasked to propose time standards for the initiation and completion of model specific programs (relative to the airplanes design service goal) to predict, verify and rectify widespread fatigue damage and to recommend action that the Authorities should take if a program, for certain model airplanes, is not initiated and completed prior to those time standards.

ARAC is in the final stages of completing this task and has issued an early recommendation that they be tasked to develop regulations to ensure that no large transport category airplane (>75,000 lbs. Gross Takeoff Weight) operates with widespread fatigue damage. This recommendation is based on evidence, gathered by ARAC from relevant tests and examples from service, that multiple site and multiple element damage exists in several different airplane types in the fleet. Such damage is a potential precursor to widespread fatigue damage.

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Due to the extent of multiple site damage and multiple element damage that has been found in the fleet prompt action is necessary. This tasking warrants expeditious action to prevent a safety problem and to preclude unplanned grounding of a significant portion of the fleet of large transport airplanes due to a finding of widespread fatigue damage. ARAC has determined that there is a need to mandate that a widespread fatigue damage program is in place by Dec. 31, 2002.

SPECIFIC TASK:

ARAC is tasked to develop regulations (14 CFR part 25 and part 121 et. al) to ensure that one year after the effective date of the rule (e.g. Dec. 31, 2002), no large transport category airplane (> 75,000 lbs. Gross Take off Weight) may be operated beyond the flight cycle limits to be specified in the regulation unless an Aging Aircraft Program has been incorporated into the operators maintenance program.

The regulations and advisory material shall establish the content of the Aging Aircraft Program. This program shall cover the necessary special inspections and modification actions for the prevention of Widespread Fatigue Damage (WFD), Structural Modifications, Supplemental Structural Inspections Programs (SSIP)/Airworthiness Limitations Instructions (ALI), Corrosion Prevention and Control Programs (CPCP) and Structural Repairs. The regulations will also require the establishment of a limit of the validity of the Aging Aircraft Program where additional reviews are necessary for continued operation.

This Task shall be completed within 9 months of tasking.

Milestones:

- A. Recommend a plan for completion of the task, including rationale, for FAA/JAA approval within three months of publication of this notice.
- B. Give a status report on each task at each ARAC issues meeting.

CONTACTS:

REMARKS:

BENEFITS OF HARMONIZATION: Harmonization would improve safety by assuring a common approach to the aging aircraft program.
